

NAVMAG Indian Island Treats Wastewater Without Chemicals

Northwest Navy Base Utilizes Ultraviolet Technology as Greener Alternative



BALANCING THE COMMAND'S mission with environmental preservation has always been a priority for Navy personnel at Naval Magazine (NAVMAG) Indian Island. The weapons station recently became the first Navy installation in Washington to utilize eco-friendly ultraviolet (UV) technology at a Navy-owned wastewater treatment facility.

The pristine waters of Puget Sound and Port Townsend Bay support an abundance of marine life and offer a variety of outdoor recreation opportu-

nities. To help preserve this important habitat, and at the same time improve cost-effectiveness of the water treatment process, the Navy decided to install a zero-chemical treatment system at NAVMAG Indian Island in December 2012.

Shaleen Kessler, NAVMAG Indian Island Environmental Department's Water Quality Program site coordinator, said the treatment system demonstrates the Navy's commitment to conservation and habitat preservation. "The whole point of

having a wastewater treatment center is to treat that water to make sure it's safe for reuse," said Kessler. "So, it was in the Navy's best interest to find a system that will result in the purest discharge with the lowest amount of environment effects, and the UV guarantees that."

The UV treatment system replaced the chlorine disinfection system, which was originally constructed in 1979. It was built to treat the collection, holding, and transfer (CHT) waste from visiting ships at the ammunition wharf. The ships discharged their CHT waste through the installation's treatment system, where wastewater produced in base facilities was also being treated before being discharged into Port Townsend Bay.

Kessler said that the old system produced a chlorine byproduct, which can be harmful to wildlife if it entered the surrounding aquatic environment in high concentrations. Though there were never any known incidents of adverse effects on wildlife, the environmental depart-

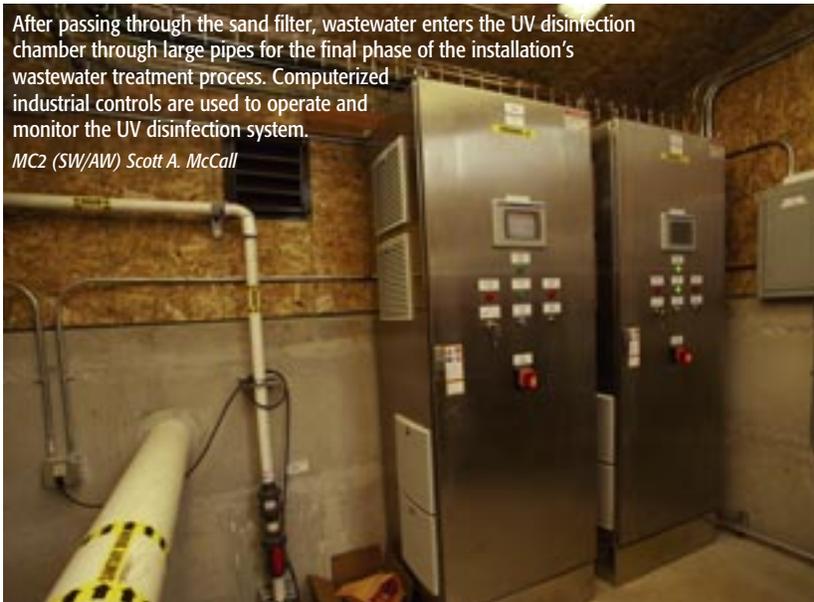
Sand filter beds provide secondary treatment of wastewater biosolids prior to entering the UV disinfection chamber at NAVMAG Indian Island. The UV treatment system then disinfects the water before it is discharged into Port Townsend Bay at the end of the installation's wastewater treatment process.

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After passing through the sand filter, wastewater enters the UV disinfection chamber through large pipes for the final phase of the installation's wastewater treatment process. Computerized industrial controls are used to operate and monitor the UV disinfection system.

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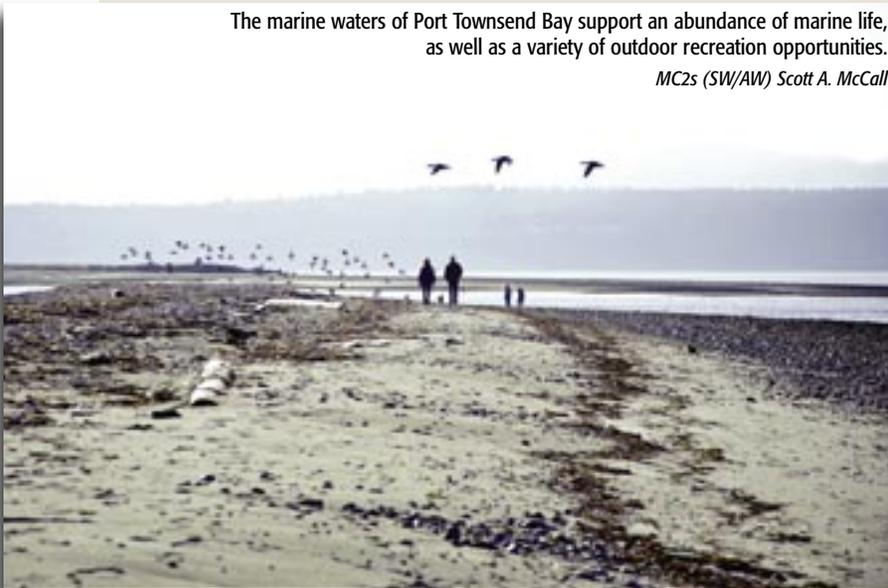


Port Townsend Bay

THE TIDAL WATERS of Puget Sound are known historically to Native Americans as the Salish Sea. Admiralty Inlet flows into Port Townsend Bay on the northeastern edge of the Quimper Peninsula in Western Washington. The marine waters and shorelines of Port Townsend Bay serve as a prime habitat area supporting an abundance of marine life, including salmon, oysters, river otters, harbor seals and orcas. These pristine waters and shorelines also offer a variety of outdoor recreation opportunities such as fishing, beach walks, kayaking and bird watching.

The marine waters of Port Townsend Bay support an abundance of marine life, as well as a variety of outdoor recreation opportunities.

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ment felt that an extra step needed to be taken to eliminate the chlorine byproduct from discharge waters.

“What UV radiation does is kill the pathogens, the bacteria and viruses, so they don’t reproduce,” said Kessler. “Plus, it eliminates the use of chemicals, so when the water comes out of the wastewater treatment center, it doesn’t have any byproducts or harmful residue.”

Not only is the UV system safer, it is also more mechanically reliable. Bill Kalina, NAVMAG Indian Island environmental site manager, added that the old chlorine system had the potential for mechanical error as well as operator error and safety issues for the workers at the treatment facility. “UV eliminates all of that variability and that potential for human error and mechanical error,” said Kalina. “This UV system has industrial controls for monitoring, so it has a computerized system that will alert us if there is a problem.”

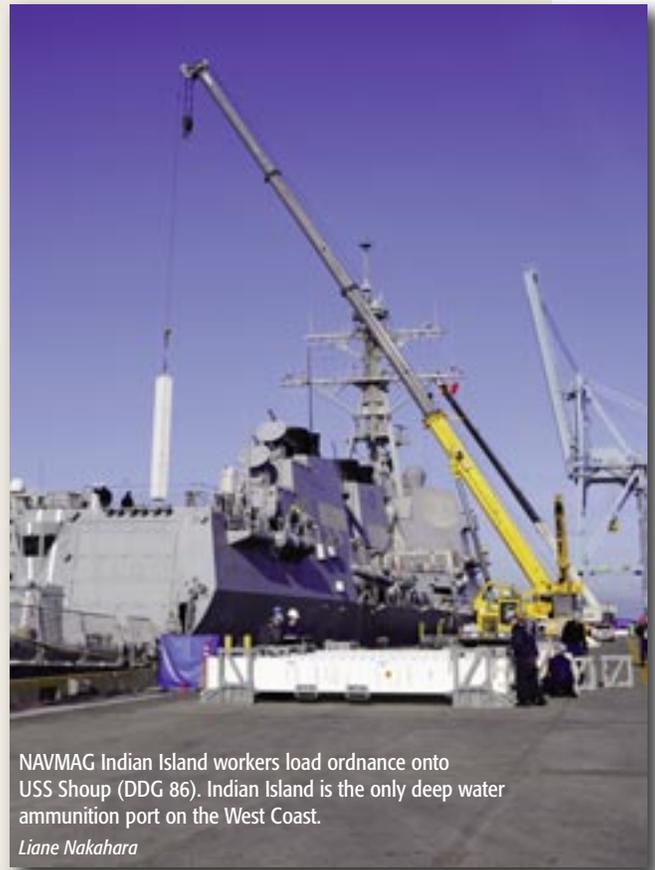
According to Kalina, the wastewater treatment system upgrade ranked as the number one utility issue on the installation. The initial cost of the UV system was more than \$640,000. The long-term cost savings will be substantial due to reduction in labor hours to monitor and maintain the new system and the elimination of material costs associated with the chlorine-based system.

Additionally, being proactive with environmental projects like the UV system helps NAVMAG Indian Island establish credibility with regulatory agencies like the U.S. Environmental Protection Agency and Washington State Department of Ecology, as well as with local tribes and members of the surrounding community.

Naval Magazine Indian Island

NAVMAG INDIAN ISLAND is the only deep water ammunition port on the West Coast. It is responsible for the joint transfer shipment of ammunition among the five branches of the military services. The base is also a critical site for joint training exercises, including waterborne security and logistics mobilization drills. Not only do NAVMAG Indian Island employees provide an invaluable service to the fleet, they also go out of their way to be good stewards of the environment by improving and protecting tidal salt marshes, building a shoreline protection system, removing creosote logs from the beaches, and remediating contaminated sites from historic World War II operations. These projects resulted in the removal of NAVMAG Indian Island from the National Priorities List by the U.S. Environmental Protection Agency in 2005. This achievement makes NAVMAG Indian Island the only Navy installation on the West Coast, and the third base in the Navy's history, to be removed from this list. In the past several years, NAVMAG Indian Island has won multiple Secretary of the Navy Energy and Water Management Awards as well as the 2012 small shore command award in the Navy Community Service Program for Environmental Stewardship. NAVMAG Indian Island takes its name from the famous British Explorer Captain George Vancouver who dubbed this land mass "Indian Island" after observing a seasonal village site of the Chemakum tribe on Walan Point during his exploration of Puget Sound in 1792. The Walan Point area is the present day location of the Navy's ammunition wharf.

For more information on NAVMAG Indian Island, visit www.cnic.navy.mil/Indian_Island/index.htm.



NAVMAG Indian Island workers load ordnance onto USS Shoup (DDG 86). Indian Island is the only deep water ammunition port on the West Coast.

Liane Nakahara



An aerator in the sewage lagoon is used to mix the water to facilitate microbial breakdown of the sludge as part of the primary phase of the wastewater treatment process.

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"Our mission is integrated with our environmental stewardship," said Kalina. "We want to be good stewards of the environment, but it is also important to us operationally to have public trust and credibility."

Kalina added that the Navy's initiative to 'go green' has both installation and fleet personnel throughout Navy Region Northwest, not just at NAVMAG Indian Island, thinking 'greener' every day.

For more news from Commander, Navy Region Northwest, visit www.navy.mil/local/cnrnw. 

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